Amendments to the claims:

1-31. (Canceled)

32.   (currently amended) A system ~~breathing mask~~ for monitoring a patient during gas delivery comprising:

a breathing mask including a body having an internal surface, an external surface, and a perimeter surface shaped to form a seal around the patient's nose; and

a headgear adapted to retain the body on the patient's head, the headgear having at least one EEG sensor positioned thereon to detect brain activity;

a processor adapted to receive a signal from said at least one EEG sensor, said processor determining said patient's sleep stage based at least in part on said signal; and

a gas delivery device in communication with said breathing mask, said gas delivery device delivering gas to the patient based on a processor determination of said patient's breathing and sleep stage.

33-56. canceled

57.   (currently amended) The ~~breathing mask~~ system of claim 32, wherein the headgear is a cap.

58.   (currently amended) The ~~breathing mask~~ system of claim 32, wherein the perimeter surface is adapted to detect ECG.

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59.   (currently amended) The ~~breathing mask~~ <u>system</u> of claim 32, and further comprising a flow sensor connected to the internal surface.

60.   (currently amended) The ~~breathing mask~~ <u>system</u> of claim 32, and further comprising an oxygen saturation sensor extended from the mask.

61.   (currently amended) The ~~breathing mask~~ <u>system</u> of claim 32, wherein the perimeter surface is adapted to detect muscle movements.

62.   (currently amended) A nasal ventilation ~~mask~~ <u>system</u> comprising:

<u>a mask including</u> a body having an internal surface, an external surface, and a perimeter surface adapted to form seal around a patient's nose,

an airhose extending from the body;

a headgear adapted to retain the body on the patient's head, the headgear having at least one EEG sensor positioned thereon to detect brain activity; ~~and~~

at least one EMG sensor connected to the body and positioned to detect muscle activity relating to a sleep ~~state~~ <u>stage</u>;

<u>a processor in communication with said at least one EEG sensor and said at least one EMG sensor, said processor determining said patient's sleep stage based at least in part on a signal received from said at least one EEG sensor; and</u>

a gas delivery device in communication with said mask, said gas delivery device

changing a delivered air pressure to said patient based on a sleep stage determination by said

processor.

63.   (currently amended) The ~~mask~~ system of claim 62, and further comprising a first

sensor positioned on the internal surface for detecting nasal breathing and a second sensor

positioned on the external surface for detecting oral breathing.

64.   (currently amended) The ~~mask~~ system of claim 63, wherein the first and second

sensors are thermal sensors.

65.   (currently amended) The ~~mask~~ system of claim 62, and further comprising at

least one EEG sensor positioned on the perimeter surface.

66.   (currently amended) The ~~mask~~ system of claim 62, and further comprising at

least one EOG sensor positioned on the perimeter surface.

67.   (currently amended) The ~~mask~~ system of claim 62, wherein a portion of the

perimeter surface is comprised of a conductive carbonized rubber material.

68.   (currently amended) The ~~mask~~ system of claim 62, and further comprising a

plurality of straps coupled to the body, the straps having at least one sensor positioned thereon.

69.   (currently amended) The ~~mask~~ system of claim 62, and further comprising a

position sensor coupled to the body.

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70.   (currently amended) The ~~mask~~ system of claim 62, and further comprising a microphone coupled to the body.

71.   (currently amended) The ~~mask~~ system of claim 62, wherein the perimeter surface ~~is adapted to sense air leaks~~ is provided with a thermally sensitive material, and wherein said system adjusts a gas pressure based on a processor determination of an air leak as indicated by a change in said thermally sensitive material.

72.   (currently amended) The ~~mask~~ system of claim 62, and further comprising a patient recycled air detection system positioned on the internal surface.

73.   (currently amended) A nasal ventilation mask assembly comprising:

a nasal mask adapted to form a seal around a patient's nose; ~~and~~

a headgear adapted to retain the body on the patient's head, the headgear having an EEG sensor positioned thereon to contact a patient's forehead upon application of the nasal mask;

a processor adapted to receive signals from said EEG sensor and to determine said patient's sleep stage;

a gas delivery device in communication with said nasal mask, said gas delivery device changing a delivered gas pressure to said patient based on said processor determination of said patient's sleep stage.

74. (currently amended) The mask assembly of claim 73 and further comprising a computer in communication with the sensor, the computer adapted to determine arousal.

75. (Canceled)

76. (currently amended) The mask assembly of claim 73 and further comprising an EMG sensor coupled to the nasal mask.

77. (currently amended) A breathing mask assembly for monitoring a patient during gas delivery comprising:

a body having an internal surface, an external surface, and a perimeter surface shaped to form a seal around the patient's nose and mouth; and

a headgear adapted to retain the body on the patient's head, the headgear having at least one EEG sensor positioned thereon so as to be positioned on a top portion of a patient's head;

a processor adapted to receive a signal from said at least one EEG sensor, said processor determining said patient's sleep stage based at least in part on said signal;

and a gas delivery device controlled by said processor to adjust gas pressure delivered to said patient based at least in part on a determination of said patient's sleep stage.

78. (canceled)

79. (currently amended) A nasal ventilation system comprising:

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a nasal mask adapted to form a seal around a patient's nose, the nasal mask having a body, an internal surface, an external surface, and a perimeter surface;

a headgear adapted to retain the body on a patient's head, the headgear having at least one EEG sensor positioned thereon so as to be positioned on a top portion of a patient's head;

an EMG sensor located on the perimeter surface; ~~and~~

a computer in communication with the EEG and EMG sensor, the computer adapted to determine sleep state based on an EEG signal and EMG signal of said patient; and

a gas delivery device in communication with said nasal mask and said computer, said gas delivery device adjusting a flow of air to the patient based on determined sleep stages of said patient.

80. (Canceled)

81. (Canceled)

82. (previously presented) The system of claim 79, and further comprising a sensor located on the external surface for determining if a patient is breathing through his mouth.

83. (previously presented) The system of claim 79, and further comprising a flow sensor located on the internal surface.